

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Linda B. Buck and Richard Axel
U.S. Serial No. : Not Yet Known
Filed : Herewith
For : ODORANT RECEPTORS AND USES THEREOF

1185 Avenue of the Americas
New York, New York 10036
January 26, 2001

Assistant Commissioner for Patents
Washington, D.C. 20231

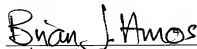
Sir:

STATEMENT IN ACCORDANCE WITH 37 C.F.R. §1.821(f)

In accordance with 37 C.F.R. §1.821(f), I hereby certify that the computer readable form containing the nucleic acid and/or amino acid sequences required by 37 C.F.R. §1.821(e) and submitted with the above-identified application contains the same information as the written "Sequence Listing" (98 pages) that is submitted as part of the application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,



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SEQUENCE LISTING

<110> Buck, Linda
Axel, Richard

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<130> 0575/38586-B/JPW/ADM

<150> US 08/129,079

<151> 1993-10-05

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Gln Val Ile His Leu Ala Cys Ser Asp Thr Phe Ile Asn Asp Met Met
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Ala Tyr Asp Arg Tyr Val Ala Ile Cys His Pro Ser Xaa Tyr Thr Gly
50          55          60
His His Glu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65          70          75          80
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
          85          90          95
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
100          105          110
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
115          120          125
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
130          135          140
Ser Tyr Ser Lys Ile Val Ser Ser Ile Arg Glu Ile Ser Ser Ser Gln
145          150          155          160
Gly Lys Tyr Lys Xaa Phe Ser Thr Cys Ala Ser His Leu Ser Val Val
          165          170          175
Ser Leu Phe Tyr Ser Thr Leu Leu Gly Val Tyr Leu Ser Ser Phe
180          185          190
Thr Gln Asn Ser His Ser Thr Ala Arg Ala Ser Val Met Tyr Ser Val
195          200          205
Val Thr Pro Met Leu
210

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<210> 15
 <211> 636
 <212> DNA
 <213> Rattus sp. J2

<400> 15
 acctccacca ccatccaaa gatgctggt aatatacaca ccagagcaa tactatcacc 60
 tatgaagact gtatttccca gatgtttgta ctcttggtt ttggagaact ggacaacttt 120
 ctctggctg tgatggccta tgatcgatat gtggctatct gtcaccact gtattacaca 180
 gtcactgtga accaccgact ctgtatctg ctgcttctgc tgcctgggt tgcagcatt 240
 ttacatgcct tcttacagag cttaattgta ctacagtga ccttctgtgg agatgtgaaa 300
 atccctcact tcttctgtga gctcaatcag ctgtcccaac tcacatgttc agacaacttt 360
 ccaagtccac tcacaatgca tcttgtacct gttatatattg cagctatttc cctcagtgg 420
 atccttact ctatttcaa gatagtgtct tccatacgtt ctatgtcttc agttcaagg 480
 aagtacaagg cattttctac atgtgcctct cactttcca ttgtctctt attttatagt 540
 acaggcctcg ggggtgactg cagttctgct gtgatccgaa gctcacactc ctctgcaagt 600
 gcttcggtca tgtatactgt ggtcacccc atgttg 636

<210> 16
 <211> 212
 <212> PRT
 <213> Rattus sp. J2

<400> 16
 Thr Ser Thr Thr Ile Pro Lys Met Leu Val Asn Ile His Thr Gln Ser
 1 5 10 15
 Asn Thr Ile Thr Tyr Glu Asp Cys Ile Ser Gln Met Phe Val Leu Leu
 20 25 30
 Val Phe Gly Glu Leu Asp Asn Phe Leu Leu Ala Val Met Ala Tyr Asp
 35 40 45
 Arg Tyr Val Ala Ile Cys His Pro Leu Tyr Tyr Thr Val Ile Val Asn
 50 55 60
 His Arg Leu Cys Ile Leu Leu Leu Leu Ser Trp Val Val Ser Ile
 65 70 75 80
 Leu His Ala Phe Leu Gln Ser Leu Ile Val Leu Gln Leu Thr Phe Cys
 85 90 95
 Gly Asp Val Lys Ile Pro His Phe Phe Cys Glu Leu Asn Gln Leu Ser
 100 105 110
 Gln Leu Thr Cys Ser Asp Asn Phe Pro Ser His Leu Thr Met His Leu
 115 120 125

Val Pro Val Ile Phe Ala Ala Ile Ser Leu Ser Gly Ile Leu Tyr Ser
 130 135 140

Tyr Phe Lys Ile Val Ser Ser Ile Arg Ser Met Ser Ser Val Gln Gly
 145 150 155 160

Lys Tyr Lys Ala Phe Ser Thr Cys Ala Ser His Leu Ser Ile Val Ser
 165 170 175

Leu Phe Tyr Ser Thr Gly Leu Gly Val Tyr Val Ser Ser Ala Val Ile
 180 185 190

Arg Ser Ser His Ser Ser Ala Ser Ala Ser Val Met Tyr Thr Val Val
 195 200 205

Thr Pro Met Leu
 210

<210> 17
 <211> 646
 <212> DNA
 <213> Rattus sp. J4

<400> 17
 cataggcat tcatottotg tcacacccaa tatgottgtc aacttcttta taaagcaaaa 60
 taccatctca taccttggat gttctataca gtttggctca gctgctttgt ttggaggctc 120
 tgaatgcttc cttctggctg ccattggcgtg tgatcgcttt gtagcaatct gcaaccacct 180
 gctttattca acgaaaatgt ccacacaagt ctgtgtccag ttggttgggt gatcttatat 240
 aggggggattt cttaatgcct cctcttttac cctttccttt ttttcttctg ccttctgtgg 300
 accaaataga atcaatcact tttactgtga ttttgcctcg ttagtagaac tttcttgcct 360
 tgatgtcagc gttcctgatg ctgttaccto attttctgct gcctcagtta ctatgctcag 420
 agtggtttatc atagccatct cctataccta tctctctcag accatctctga agatgcgttc 480
 cactgagggg cgacagaaaag cattctctac ctgcacttcc cactcactg cagtcaactct 540
 gtgctatgga accatcacat tcatctatgt gatgcccaag tccagctact ccacagacca 600
 gaacaagggtg gtgtctgtgt tttatatggt ggtgatcccc atgttg 646

<210> 18
 <211> 215
 <212> FRT
 <213> Rattus sp. J4

<400> 18

Ile Gly Tyr Ser Ser Val Thr Pro Asn Met Leu Val Asn Phe Leu
 1 5 10 15

Ile Lys Gln Asn Thr Ile Ser Tyr Leu Gly Cys Ser Ile Gln Phe Gly

20					25					30					
Ser	Ala	Ala	Leu	Phe	Gly	Gly	Leu	Glu	Cys	Phe	Leu	Leu	Ala	Ala	Met
	35						40					45			
Ala	Tyr	Asp	Arg	Phe	Val	Ala	Ile	Cys	Asn	Pro	Leu	Leu	Tyr	Ser	Thr
	50					55					60				
Lys	Met	Ser	Thr	Gln	Val	Cys	Val	Gln	Leu	Val	Val	Gly	Ser	Tyr	Ile
	65					70					75				80
Gly	Gly	Phe	Leu	Asn	Ala	Ser	Ser	Phe	Thr	Leu	Ser	Phe	Phe	Ser	Leu
			85						90					95	
Ser	Phe	Cys	Gly	Pro	Asn	Arg	Ile	Asn	His	Phe	Tyr	Cys	Asp	Phe	Ala
			100					105					110		
Pro	Leu	Val	Glu	Leu	Ser	Cys	Ser	Asp	Val	Ser	Val	Pro	Asp	Ala	Val
		115					120					125			
Thr	Ser	Phe	Ser	Ala	Ala	Ser	Val	Thr	Met	Leu	Thr	Val	Phe	Ile	Ile
		130					135					140			
Ala	Ile	Ser	Tyr	Thr	Tyr	Ile	Leu	Ile	Thr	Ile	Leu	Lys	Met	Arg	Ser
	145					150					155				160
Thr	Glu	Gly	Arg	Gln	Lys	Ala	Phe	Ser	Thr	Cys	Thr	Ser	His	Leu	Thr
			165						170					175	
Ala	Val	Thr	Leu	Cys	Tyr	Gly	Thr	Ile	Thr	Phe	Ile	Tyr	Val	Met	Pro
			180				185						190		
Lys	Ser	Ser	Tyr	Ser	Thr	Asp	Gln	Asn	Lys	Val	Val	Ser	Val	Phe	Tyr
		195					200					205			
Met	Val	Val	Ile	Pro	Met	Leu									
	210					215									

<210> 19
 <211> 481
 <212> DNA
 <213> Rattus sp. J7

<400> 19	
catctgcaag cccctgcact acaccaccat catgaataac cgagtgtgca cagttctagt	60
cctctctctgt tgggtttgctg gcctgttgat catctctccca cctcttggtc atggcctcca	120
gctggaggttc tgtgaactcca atgtgattga tcattttggc tgtgatgcct ctccaattct	180
gcagataacc tgctcagaca cgggtatttat agagaaaatt gtcttggtc ttgccatact	240
gacacctcacc attactctgg tatgtgttgt tctctcctac acatacatca tcaagaccat	300
tttaaaagtgt cctctctgctc aacaaagaaa aaaggccttt tctacatggt cttccacat	360
gattgtgggtt tccatcacct atgggagctg tattttcacc tacatcaaac cttcagcgaa	420
ggaaggggta gccatcaata aggttgtatc tgtctccaca acatcagtcg cccctttgct	480

<210> 20
 <211> 160
 <212> PRT
 <213> Rattus sp. J7

<400> 20

Ile Cys Lys Pro Leu His Tyr Thr Thr Ile Met Asn Asn Arg Val Cys
 1 5 10 15

Thr Val Leu Val Leu Ser Cys Trp Phe Ala Gly Leu Leu Ile Ile Leu
 20 25 30

Pro Pro Leu Gly His Gly Leu Gln Leu Glu Phe Cys Asp Ser Asn Val
 35 40 45

Ile Asp His Phe Gly Cys Asp Ala Ser Pro Ile Leu Gln Ile Thr Cys
 50 55 60

Ser Asp Thr Val Phe Ile Glu Lys Ile Val Leu Ala Phe Ala Ile Leu
 65 70 75 80

Thr Leu Ile Ile Thr Leu Val Cys Val Val Leu Ser Tyr Thr Tyr Ile
 85 90

Ile Lys Thr Ile Leu Lys Phe Pro Ser Ala Gln Gln Arg Lys Lys Ala
 100 105 110

Phe Ser Thr Cys Ser Ser His Met Ile Val Val Ser Ile Thr Tyr Gly
 115 120 125

Ser Cys Ile Phe Ile Tyr Ile Lys Pro Ser Ala Lys Glu Gly Val Ala
 130 135 140

Ile Asn Lys Val Val Ser Val Leu Thr Thr Ser Val Ala Pro Leu Leu
 145 150 155 160

<210> 21
 <211> 481
 <212> DNA
 <213> Rattus sp. J8

<220>

<221> misc_feature

<222> {}..{}
 <223> n = unknown

<400> 21

catctgccac ccogetccact actctctttct catgagtcct gacaactgtg ctgctctggt 60

aacagctctcc tgggtgacag ggggtgggcac gggcttctcg ccttccctcc tgatttctaa 120

gttgagcttc tgtgggcccc accgcatcaa ccattttctt tgtgacctcc ctccattaat 180

ccagctgtcc tgctccagcg tctttgtgac agaaatggcc atctttgtcc tgtccatcgc 240
 tgtgtctcgc atctgtttcc tcttaaccon nnnntcctac attttcatag tgtcctccat 300
 tctgagaatc ccttccacta ccggcaggat gaagacattt tctacatgtg gctccacact 360
 ggcggtggc accatctact atgggaccat gatctccatg tatgtcggcc caaatgcgca 420
 tctgtccccc gagctcaaca aggtcatttc tgtctctac actgtgatca cccactact 480
 g 481

<210> 22
 <211> 160
 <212> PRT
 <213> Rattus sp. J8

<220>
 <221> UNSURE
 <222> (90)..(91)
 <223> x = unknown

<400> 22

Ile Cys His Pro Leu His Tyr Ser Leu Leu Met Ser Pro Asp Asn Cys
 1 5 10 15
 Ala Ala Leu Val Thr Val Ser Trp Val Thr Gly Val Gly Thr Gly Phe
 20 25 30
 Leu Pro Ser Leu Leu Ile Ser Lys Leu Asp Phe Cys Gly Pro Asn Arg
 35 40 45
 Ile Asn His Phe Phe Cys Asp Leu Pro Pro Leu Ile Gln Leu Ser Cys
 50 55 60
 Ser Ser Val Phe Val Thr Glu Met Ala Ile Phe Val Leu Ser Ile Ala
 65 70 75 80
 Val Leu Cys Ile Cys Phe Leu Leu Thr Xaa Xaa Ser Tyr Ile Phe Ile
 85 90 95
 Val Ser Ser Ile Leu Arg Ile Pro Ser Thr Thr Gly Arg Met Lys Thr
 100 105 110
 Phe Ser Thr Cys Gly Ser His Leu Ala Val Val Thr Ile Tyr Tyr Gly
 115 120 125
 Thr Met Ile Ser Met Tyr Val Gly Pro Asn Ala His Leu Ser Pro Glu
 130 135 140
 Leu Asn Lys Val Ile Ser Val Phe Tyr Thr Val Ile Thr Pro Leu Leu
 145 150 155 160
 <210> 23
 <211> 646
 <212> DNA


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<213> Rattus sp. J11
<220>
<221> misc_feature
<222> {}..{}
<223> n = unknown

<400> 23
ngtctgcttc tctccacca ctgtccccaa ggtactggct aaccacatac tcagtagtca      60
ggccatttcc ttctctgggt gtctaaactca gctgtatttt ctctgtgtgt ctgtgaatat      120
ggacaatttc ctgctggctg tgatggccta tgacagattt gtggccatat gccacccttt      180
gtactacaca acaaagatga cccaccagct ctgtgtcttg ctgtgtctctg gatcannnnn      240
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn      300
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn      360
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nntgtgatca tggtcacccc      420
atttgtctgc atctcatct cttacatcta catcaccaat gcagtcctca gagtctcate      480
ctttaggggg ggatggaaag cttctccac ctgtggctca cacctggctg tggctgacct      540
cttctatggc accatcattg ctgtgtattt caatcctgta tcttccatt catctgagaa      600
ggacactgca gcaactgtgc tatacacagt ggtgactccc atgttg      646

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<210> 24
<211> 215
<212> PRT
<213> Rattus sp. J11

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<220>
<221> UNSURE
<222> (79)..(134)
<223> x = unknown

```

```

<400> 24

Val Cys Phe Ser Ser Thr Thr Val Pro Lys Val Leu Ala Asn His Ile
1          5          10          15

Leu Ser Ser Gln Ala Ile Ser Phe Ser Gly Cys Leu Thr Gln Leu Tyr
20          25          30

Phe Leu Cys Val Ser Val Asn Met Asp Asn Phe Leu Leu Ala Val Met
35          40          45

Ala Tyr Asp Arg Phe Val Ala Ile Cys His Pro Leu Tyr Tyr Thr Thr
50          55          60

Lys Met Thr His Gln Leu Cys Val Leu Leu Val Ser Gly Ser Xaa Xaa
65          70          75          80

```

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
85 90 95

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
100 105 110

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
115 120 125

Xaa Xaa Xaa Xaa Xaa Xaa Val Ile Met Val Thr Pro Phe Val Cys Ile
130 135 140

Leu Ile Ser Tyr Ile Tyr Ile Thr Asn Ala Val Leu Arg Val Ser Ser
145 150 155 160

Phe Arg Gly Gly Trp Lys Ala Phe Ser Thr Cys Gly Ser His Leu Ala
165 170 175

Val Val Cys Leu Phe Tyr Gly Thr Ile Ile Ala Val Tyr Phe Asn Pro
180 185 190

Val Ser Ser His Ser Ser Glu Lys Asp Thr Ala Ala Thr Val Leu Tyr
195 200 205

Thr Val Val Thr Pro Met Leu
210 215

<210> 25

<211> 646

<212> DNA

<213> Rattus sp. J14

<220>

<221> misc_feature

<222> {}..()

<223> n = unknown

<400> 25
tgtctgcttc tctctcacca ctgtccccc ggtactggct aaccacatac tcagtagtca 60
ggccatttcc ttctctgggt gtctaactca gctgtatttt ctctgtgtgt ctgtgaatat 120
ggacaatttc ctgctggctg tgatggccta tgacagattt gtggccatat gccacccttt 180
gtactacaca acaccgatga cccaccagct ctgtgtcttg ctggtgtctg gatcannnnn 240
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 300
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 360
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nntgtgatca tggtcacccc 420
atttgctgc atctcatct cttacatcta catcaccaat gcagtcctca gagtctcatc 480
ctttagggga ggatggaaag ccttctccac ctgtgggtca cacctggctg tggctctgct 540
cttctatggc accatcattg ctgtgtattt caatcctgta tcttccatt catctgagaa 600

ggacactgca gcaactgtgc tatacacagt ggtgactccc atgttg

646

<210> 26
 <211> 215
 <212> PRT
 <213> Rattus sp. J14

<220>
 <221> UNSURE
 <222> (79)..(134)
 <223> x = unknown

<400> 26

Val	Cys	Phe	Ser	Ser	Thr	Thr	Val	Pro	Lys	Val	Leu	Ala	Asn	His	Ile	
1				5					10					15		
Leu	Ser	Ser	Gln	Ala	Ile	Ser	Phe	Ser	Gly	Cys	Leu	Thr	Gln	Leu	Tyr	
			20					25					30			
Phe	Leu	Cys	Val	Ser	Val	Asn	Met	Asp	Asn	Phe	Leu	Leu	Ala	Val	Met	
		35					40					45				
Ala	Tyr	Asp	Arg	Phe	Val	Ala	Ile	Cys	His	Pro	Leu	Tyr	Tyr	Thr	Thr	
	50					55					60					
Pro	Met	Thr	His	Gln	Leu	Cys	Val	Leu	Leu	Val	Ser	Gly	Ser	Xaa	Xaa	
	65				70					75					80	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	
			85						90						95	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	
			100					105							110	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	
		115					120					125				
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Val	Ile	Met	Val	Thr	Pro	Phe	Val	Cys	Ile	
		130				135					140					
Leu	Ile	Ser	Tyr	Ile	Tyr	Ile	Thr	Asn	Ala	Val	Leu	Arg	Val	Ser	Ser	
	145					150					155				160	
Phe	Arg	Gly	Gly	Trp	Lys	Ala	Phe	Ser	Thr	Cys	Gly	Ser	His	Leu	Ala	
				165					170					175		
Val	Val	Cys	Leu	Phe	Tyr	Gly	Thr	Ile	Ile	Ala	Val	Tyr	Phe	Asn	Pro	
			180					185						190		
Val	Ser	Ser	His	Ser	Ser	Glu	Lys	Asp	Thr	Ala	Ala	Thr	Val	Leu	Tyr	
		195					200						205			
Thr	Val	Val	Thr	Pro	Met	Leu										
		210				215										

<210> 27
 <211> 481
 <212> DNA
 <213> Rattus sp. J15

<220>
 <221> misc_feature
 <222> {}..{}
 <223> x = unknown

<400> 27
 tatctgcaac cctctgcgct acccagtgt catgagcggc cgggtgtgcc tgctcatggt 60
 cgtggcctcc tgggtgggag gatccctcaa cgcctccatt cagacttctc tgacccttca 120
 gttccccctac tgtggatcac ggaagatctc ccactctctc tgtgagggtc cctcgtgtgt 180
 gannntggcc tgtgcagaca ctgaagccta tgagcaggta ctatttgtga caggcgtggt 240
 ggtcctcctg gtgcccattha cattcattac tgcctcttat gccctcatcc tgggtgtgtgt 300
 gctccgaatg cactctgcgg agggggagtc gaaggcccta gccacatgct cctctcacct 360
 gacagtcgtc aatctcttct atggggccct tgtctacacc tacatgttac ctgcttctca 420
 tcactcacca ggccaagacg acatagtatc cgtcttttac accgttctca caccatgct 480
 t 481

<210> 28
 <211> 160
 <212> PRT
 <213> Rattus sp. J15
 <220>
 <221> UNSURE
 <222> (61)..(62)
 <223> x = unknown

<400> 28
 Ile Cys Asn Pro Leu Arg Tyr Pro Val Leu Met Ser Gly Arg Val Cys
 1 5 10 15
 Leu Leu Met Val Val Ala Ser Trp Leu Gly Gly Ser Leu Asn Ala Ser
 20 25 30
 Ile Gln Thr Ser Leu Thr Leu Gln Phe Pro Tyr Cys Gly Ser Arg Lys
 35 40 45
 Ile Ser His Phe Phe Cys Glu Val Pro Ser Leu Leu Xaa Xaa Ala Cys
 50 55 60
 Ala Asp Thr Glu Ala Tyr Glu Gln Val Leu Phe Val Thr Gly Val Val
 65 70 75 80

Val Leu Leu Val Pro Ile Thr Phe Ile Thr Ala Ser Tyr Ala Leu Ile
85 90 95
Leu Ala Ala Val Leu Arg Met His Ser Ala Glu Gly Ser Gln Lys Ala
100 105 110
Leu Ala Thr Cys Ser Ser His Leu Thr Val Val Asn Leu Phe Tyr Gly
115 120 125
Pro Leu Val Tyr Thr Tyr Met Leu Pro Ala Ser Tyr His Ser Pro Gly
130 135 140
Gln Asp Asp Ile Val Ser Val Phe Tyr Thr Val Leu Thr Pro Met Leu
145 150 155 160

<210> 29
<211> 481
<212> DNA
<213> Rattus sp. J16

<400> 29
catctgtagg cctcttcact atcctaccct catgaccag acactgtgtg ccaagattgc 60
cactgggtgc tgggtgggag gcttggtggt gccagtggta gaaatttctt tgggtgtctg 120
tctcttttt tgtggcccca atcacattca acacatcttt tgtgatttcc cacctgtgct 180
gagcttggtc tgtactgata catcagttaa tgccttggtg gattttatta taaacctctg 240
caagatcctg gccaccttcc tgcgtatcct gagctctac ttgcagataa tccgcacagt 300
gctcaagatt ccttcagctg caggcaagaa gaaagcattc tcgacttggt cctcccatct 360
cactgtgggt ctcattctct atgggagcat ccttttcatt tatgtggggc tgaagaagac 420
ttactccott gactacgaca gagccttggt agtagtctac tccgtgggtt cccctttctt 480
g 481

<210> 30
<211> 160
<212> PRT
<213> Rattus sp. J16

<400> 30

Ile Cys Arg Pro Leu His Tyr Pro Thr Leu Met Thr Gln Thr Leu Cys
1 5 10 15
Ala Lys Ile Ala Thr Gly Cys Trp Leu Gly Gly Leu Ala Gly Pro Val
20 25 30
Val Glu Ile Ser Leu Val Ser Arg Leu Leu Phe Cys Gly Pro Asn His
35 40 45
Ile Gln His Ile Phe Cys Asp Phe Pro Pro Val Leu Ser Leu Ala Cys
50 55 60

Thr Asp Thr Ser Val Asn Val Leu Val Asp Phe Ile Ile Asn Leu Cys
 65 70 75 80
 Lys Ile Leu Ala Thr Phe Leu Leu Ile Leu Ser Ser Tyr Leu Gln Ile
 85 90 95
 Ile Arg Thr Val Leu Lys Ile Pro Ser Ala Ala Gly Lys Lys Lys Ala
 100 105 110
 Phe Ser Thr Cys Ala Ser His Leu Thr Val Val Leu Ile Phe Tyr Gly
 115 120 125
 Ser Ile Leu Phe Met Tyr Val Arg Leu Lys Lys Thr Tyr Ser Leu Asp
 130 135 140
 Tyr Asp Arg Ala Leu Ala Val Val Tyr Ser Val Val Thr Pro Phe Leu
 145 150 155 160

<210> 31
 <211> 481
 <212> DNA
 <213> Rattus sp. J17

<220>
 <221> misc_feature
 <222> ()..()
 <223> n = unknown

<400> 31
 aatctgcaac ccactgcttt attccaccaa aatgtccaca caagtctgta tccagttggt 60
 tgcaggatct tatatagggg gttttcttaa taattgcttc atcatgtttt actttttctc 120
 tttctcttc tgtgggccaa atatagttga tcattttttc tgtgattttg ctcccttntt 180
 ggaacttttg tgctctgatg tgagtgtctc tgtagttggt atgtcatttt ctgctggctc 240
 agttactatg atcacagtgt ttatcatagc catctctctat tcttcatcc tcatcaccaat 300
 cctgaagatg tcttcaactg agggccgtca caaggcttcc tccacatgta cctccacact 360
 cactgcagtc actctctact atggcaccat taccttcatt tatgtgatgc ccaagtcocac 420
 atactctaca gaccagaaca aggtgggtgc tgtgttttac atggtgggtga tcccaatggt 480
 g 481

<210> 32
 <211> 160
 <212> PR7
 <213> Rattus sp. J17

<220>
 <221> UNSURE
 <222> (59)..(60)
 <223> x = unknown

<400> 32

Ile Cys Asn Pro Leu Leu Tyr Ser Thr Lys Met Ser Thr Gln Val Cys
1 5 10 15

Ile Gln Leu Val Ala Gly Ser Tyr Ile Gly Gly Phe Leu Asn Thr Cys
20 25 30

Leu Ile Met Phe Tyr Phe Phe Ser Phe Leu Phe Cys Gly Pro Asn Ile
35 40 45

Val Asp His Phe Phe Cys Asp Phe Ala Pro Xaa Xaa Glu Leu Ser Cys
50 55 60

Ser Asp Val Ser Val Ser Val Val Val Met Ser Phe Ser Ala Gly Ser
65 70 75 80

Val Thr Met Ile Thr Val Phe Ile Ile Ala Ile Ser Tyr Ser Tyr Ile
85 90 95

Leu Ile Thr Ile Leu Lys Met Ser Ser Thr Glu Gly Arg His Lys Ala
100 105 110

Phe Ser Thr Cys Thr Ser His Leu Thr Ala Val Thr Leu Tyr Tyr Gly
115 120 125

Thr Ile Thr Phe Ile Tyr Val Met Pro Lys Ser Thr Tyr Ser Thr Asp
130 135 140

Gln Asn Lys Val Val Ser Val Phe Tyr Met Val Val Ile Pro Met Leu
145 150 155 160

<210> 33

<211> 479

<212> DNA

<213> Rattus sp. J19

<400> 33

tatctgccac cctctgaagt acacagttat catgaatcac tatttttgtg tgatgtgtgt 60

gtctctctct gtgttcgtta gcattgcaca tgcgttggtc cacattttaa tgggtgtgat 120

actgactttc agcacaaaaa ctgaaatccc tcactttttc tgtgagctgg ctcatatcat 180

caaaacttacc tgttcogata attttatcaa ctatctgctg atatacacag agtctgtott 240

attttttggg gtcatattg tagggatcat ttgtcttat atttacactg tatcctcagt 300

tttaagaatg tcattattgg gaggaatgta taaagccttt tcaacatgtg gatctcattt 360

gtcggttgtc tctgttttat ggcacagggt ttgggggtaca cataagctct ccacttactg 420

actctccaag gaagactgta gtggcttcag tgatgtacac tgtggttact cagatgtgt 479

<210> 34

<211> 139

<212> PRT

<213> Rattus sp. J19

<400> 34

Ile Cys His Pro Leu Lys Tyr Thr Val Ile Met Asn His Tyr Phe Cys
1 5 10 15

Val Met Leu Leu Leu Phe Ser Val Phe Val Ser Ile Ala His Ala Leu
20 25 30

Phe His Ile Leu Met Val Leu Ile Leu Thr Phe Ser Thr Lys Thr Glu
35 40 45

Ile Pro His Phe Phe Cys Glu Leu Ala His Ile Ile Lys Leu Thr Cys
50 55 60

Ser Asp Asn Phe Ile Asn Tyr Leu Leu Ile Tyr Thr Glu Ser Val Leu
65 70 75 80

Phe Phe Gly Val His Ile Val Gly Ile Ile Leu Ser Tyr Ile Tyr Thr
85 90 95

Val Ser Ser Val Leu Arg Met Ser Leu Leu Gly Gly Met Tyr Lys Ala
100 105 110

Phe Ser Thr Cys Gly Ser His Leu Ser Val Val Ser Val Leu Trp His
115 120 125

Arg Phe Trp Gly Thr His Lys Leu Ser Thr Tyr
130 135

<210> 35

<211> 480

<212> DNA

<213> Rattus sp. J20

<220>

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<222> {}..{}
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<400> 35

aatctgctac ccaactgaggt accttctcat catgagctgg gtggtgtgca cagcaactgtc 60

cgtggcaate tgggtcatag gcttttgtgc ctccgttata cctctctgct tcacgatcct 120

cccactctgt ggctcttacg tcgttgatta tcttttctgc gagctgccca tcttctgtca 180

ctgttctgc acagatacat ctctgctgga gnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 240

nnnnnnnnnn nnccttctct cctgattgtt ctctctacc ttgcatacct ggtggctgtg 300

ataagaatat actcagctga gggcagaaaa aaggcctttt caacttgtgc ttcacacttg 360

gctgtggtga ccactacta tggaacaggg ctgatcaggt acttgaggcc caagtcctt 420

tattccgctg agggagacag actgatctct gtgtctatg cagtcattgg cctgtcactg 480

<210> 36
 <211> 160
 <212> PRT
 <213> Rattus sp. J20

<220>
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 <222> (71)..(84)
 <223> x = unknown

<400> 36

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Ile Cys Tyr Pro Leu Arg Tyr Leu Leu Ile Met Ser Trp Val Val Cys
1          5          10
Thr Ala Leu Ser Val Ala Ile Trp Val Ile Gly Phe Cys Ala Ser Val
          20          25          30
Ile Pro Leu Cys Phe Thr Ile Leu Pro Leu Cys Gly Pro Tyr Val Val
          35          40          45
Asp Tyr Leu Phe Cys Glu Leu Pro Ile Leu Leu His Leu Phe Cys Thr
          50          55          60
Asp Thr Ser Leu Leu Glu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65          70          75          80
Xaa Xaa Xaa Xaa Pro Phe Leu Leu Ile Val Leu Ser Tyr Leu Arg Ile
          85          90          95
Leu Val Ala Val Ile Arg Ile Asp Ser Ala Glu Gly Arg Lys Lys Ala
          100          105          110
Phe Ser Thr Cys Ala Ser His Leu Ala Val Val Thr Ile Tyr Tyr Gly
          115          120          125
Thr Gly Leu Ile Arg Tyr Leu Arg Pro Lys Ser Leu Tyr Ser Ala Glu
          130          135          140
Gly Asp Arg Leu Ile Ser Val Phe Tyr Ala Val Ile Gly Pro Ala Leu
145          150          155          160

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<210> 37
 <211> 35
 <212> DNA
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<222> {10}..{10}
<223> a or c

<220>
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<222> {13}..{13}
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<223> i

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<223> c or t

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<223> i

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<222> {27}..(27)

<223> i

<220>

<221> modified_base

<222> {30}..(30)

<223> i

<220>

<221> modified_base

<222> {33}..(33)

<223> i

<400> 37

aentnnatnn tntntaaant ngcngtngcn gcnga

35

<210> 38

<211> 32

<212> DNA

<213> artificial - primer A2

<220>

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<222> {3}..(3)

<223> n = c or t

<220>

<221> misc_feature

<222> {6}..(6)

<223> n = c or t

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<221> misc_feature

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<223> n = c or t

<220>

<221> misc_feature

<222> {10}..(10)

<223> n = c or a

<220>

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<222> {12}..(12)

<223> i

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<220>
<221> misc_feature
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<223> n = g or a

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<223> i

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<223> n = t or c

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<220>
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<223> i

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<223> i

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<220>
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<222> {30}..{30}
<223> i

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```

<400> 38
aantantnn tntntnaanct ncnntnngcn ga

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32

```

<210> 39
<211> 32
<212> DNA
<213> artificial - primer A3

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```

<220>

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<220>
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<223> n = a or t

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<220>
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<223> i

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<220>
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<223> n = c or t

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<220>
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<223> n = c or a

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<220>
<221> modified_base
<222> (12)..(12)
<223> i

```

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<220>
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<223> i

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<223> n = a or t

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<220>
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<223> i

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 <222> {27}..(27)
 <223> i

<220>
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 <222> {30}..(30)
 <223> i

<400> 39
 aannnnntttnn tnatnnncnct ngcntnngcn ga

32

<210> 40
 <211> 32
 <212> DNA
 <213> artificial - primer A4

<220>
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<220>
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 <222> {6}..(6)
 <223> i

<220>
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 <223> n = t or c

<220>
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<222> {9}..(9)
<223> i

<220>
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<223> n = c or t

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<223> i

<220>
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<223> n = a or t

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<222> {23}..(23)
<223> n = c or g

<220>
<221> misc_feature
<222> {24}..(24)
<223> n = c or t

<220>
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<222> {27}..(27)
<223> n = c or t

<220>
<221> modified_base
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<223> i

<400> 40
ngnttnntna tgtgnaantc nnnnttngcn ga

32

<210> 41
<211> 32
<212> DNA

<213> artificial - primer A5

<220>

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<222> {3}..(3)

<223> i

<220>

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<222> {6}..(6)

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<223> n = t or c

<220>

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<222> {12}..(12)

<223> i

<220>

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<223> i

<220>

<221> misc_feature

<222> {18}..(19)

<223> n = t or c

<220>

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<222> {21}..(21)

<223> i

<220>

<221> misc_feature

<222> {22}..(22)

<223> n = a or t

<220>

<221> misc_feature

<222> {23}..(23)

<223> n = c or g

<220>

<221> modified_base

<222> {24}..(24)

<223> i

<220>

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<222> {27}..{27}

<223> i

<220>

<221> modified_base

<222> {30}..{30}

<223> i

<400> 41

acngtatana tnaacncaant nnnnatngcn ga

32

<210> 42

<211> 33

<212> DNA

<213> artificial - primer B1

<220>

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<222> {4}..{4}

<223> i

<220>

<221> misc_feature

<222> {5}..{5}

<223> n = c or t

<220>

<221> misc_feature

<222> {6}..{6}

<223> n = g or t

<220>

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<222> {7}..{7}

<223> n = g or a

<220>

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<222> {13}..{13}

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<222> {15}..{15}

<223> n = a or t

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 <223> n = a or c

<220>
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 <223> n = a or g

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 <223> i

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<220>
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<220>
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<220>
 <221> misc_feature
 <222> {31}..{31}
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<400> 42
 ctgnnnnttc atnannnnnt anannnngg ntt

33

<210> 43
<211> 31
<212> DNA
<213> artificial - primer B2

<220>
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<220>
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<223> n = g or a

<220>
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<222> (4)..(4)
<223> n = g or c

<220>
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<222> (5)..(5)
<223> n = g or a

<220>
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<223> i

<220>
<221> misc_feature
<222> (11)..(11)
<223> n = g or a

<220>
<221> misc_feature
<222> (14)..(14)
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<220>
<221> misc_feature
<222> (17)..(17)
<223> n = g or a

<220>
<221> modified_base
<222> (20)..(20)
<223> i

<220>
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 <222> (23)..(23)
 <223> i

<220>
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<220>
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 <223> n = g or a

<400> 43
 nntnnttnag ncancantan atnatnggnt t

31

<210> 44
 <211> 32
 <212> DNA
 <213> artificial - primer B3

<220>
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<220>
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 <222> (9)..(9)
 <223> n = g or a

<220>
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 <223> i

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 <222> (15)..(15)
 <223> i

<220>
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<220>
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<223> i

<220>
<221> modified_base
<222> (24)..(24)
<223> i

<220>
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<222> (27)..(27)
<223> i

<220>
<221> misc_feature
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<223> n = g or a

<400> 44
tcnatnttna angntngnta natnatnggn tt

<210> 45
<211> 32
<212> DNA
<213> artificial - primer B4

<220>
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<220>
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<223> i

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<222> (9)..(9)
<223> n = g or a

<220>
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<222> (12)..(12)
<223> i

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32

<220>
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<220>
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<220>
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<223> i

<220>
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<223> n = g or a

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<223> i

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<222> (30)..(30)
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<400> 45
gcnttngtga anattngcta nagnaanggn tt

32

<210> 46
<211> 32
<212> DNA
<213> artificial - primer B5

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<223> n = a or g

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<222> (6)..(6)
<223> i

<220>
<221> misc_feature
<222> (9)..(9)
<223> n = a or g

<220>
<221> misc_feature
<222> (10)..(10)
<223> n = c or g

<220>
<221> misc_feature
<222> (11)..(11)
<223> n = a or t

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<222> (12)..(12)
<223> i

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<223> n = g or c

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<222> (21)..(21)
<223> i

<220>
<221> misc_feature
<222> (24)..(24)
<223> n = g or c

<220>
<221> modified_base
<222> (26)..(27)
<223> i

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<220>
<221> misc_feature
<222> {30}..(30)
<223> n = a or g

```

```

<400> 46
aantcngggn nncgnnanta natnanngn tt

```

32

```

<210> 47
<211> 32
<212> DNA
<213> artificial - primer B6

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```

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<220>
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<223> n = a or t

```

```

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<223> i

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<220>
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<223> n = a or g

<220>
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<222> (27)..(27)
<223> i

<220>
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<222> (30)..(30)
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<400> 47
nnnnnnccna cnaanaanta natnaanggn tt

32

<210> 48
<211> 23
<212> DNA
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<220>
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<223> n = t or c

<220>

<221> misc_feature

<222> {12}..(12)

<223> n = t or c

<220>

<221> misc_feature

<222> {13}..(13)

<223> n = a or c

<220>

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<222> {15}..(15)

<223> i

<220>

<221> misc_feature

<222> {18}..(18)

<223> n = t or c

<220>

<221> modified_base

<222> {21}..(21)

<223> i

<400> 48

atggcctang anngntangt ngc

23

<210> 49

<211> 29

<212> DNA

<213> artificial - primer P4

<220>

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<222> {3}..(3)

<223> i

<220>

<221> misc_feature

<222> {5}..(5)

<223> n = g or a

<220>

<221> modified_base

<222> {6}..(6)

<223> i

<220>
<221> misc_feature
<222> {7}..{7}
<223> n = g or c

<220>
<221> misc_feature
<222> {8}..{8}
<223> n = a or t

<220>
<221> modified_base
<222> {9}..{9}
<223> i

<220>
<221> modified_base
<222> {12}..{12}
<223> i

<220>
<221> misc_feature
<222> {14}..{14}
<223> n = t or c

<220>
<221> modified_base
<222> {15}..{15}
<223> i

<220>
<221> misc_feature
<222> {16}..{16}
<223> n = g or c

<220>
<221> misc_feature
<222> {17}..{17}
<223> n = a or t

<220>
<221> modified_base
<222> {18}..{18}
<223> i

<220>
<221> misc_feature
<222> {20}..{20}
<223> n = g or a

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<220>
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```

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<220>
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```

```

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```

```

<220>
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<222> (26)..(26)
<223> n = a or t

```

```

<220>
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<222> (27)..(27)
<223> i

```

```

<220>
<221> misc_feature
<222> (28)..(28)
<223> n = g or c

```

```

<400> 49
aanannnnna cnaannnnnan ntgnnnnnnc

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29

```

<210> 50
<211> 6
<212> PRT
<213> artificial - motif

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```

<400> 50

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```

Lys Ile Val Ser Ser Ile
1          5

```

```

<210> 51
<211> 6
<212> PRT
<213> artificial - motif

```

```

<400> 51

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Arg Ile Val Ser Ser Ile

1 5

<210> 52

<211> 6

<212> PRT

<213> artificial - motif

<400> 52

His Ile Thr Cys Ala Val

1 5

<210> 33

<211> 6

<212> PRT

<213> artificial - motif

<400> 53

His Ile Thr Trp Ala Val

1 5

<210> 54

<211> 19

<212> PRT

<213> Rattus sp.

<400> 54

Leu Ser Lys Glu Asp Cys Ser Gly Phe Ser Asp Val His Cys Gly Tyr

1 5 10 15

Ser Asp Ala

<210> 55

<211> 9

<212> PRT

<213> Artificial - motif

<220>

<221> UNSURE

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<400> 55

Leu Xaa Xaa Pro Met Tyr Xaa Phe Leu

1 5

<210> 56

<211> 9

<212> PRT

<213> Artificial - motif

<220>

<221> VARIANT

<222> (2)..(2)
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<220>
<221> VARIANT
<222> (3)..(3)
<223> X = K or M or T

<220>
<221> VARIANT
<222> (7)..(7)
<223> X = F or L

<400> 56

Leu Xaa Xaa Pro Met Tyr Xaa Phe Leu
1 5

<210> 57
<211> 10
<212> PRT
<213> Artificial - motif

<220>
<221> UNSURE
<222> (2)..(7)
<223> X = UNKNOWN

<400> 57

Met Xaa Tyr Asp Arg Xaa Xaa Ala Ile Cys
1 5 10

<210> 58
<211> 10
<212> PRT
<213> Artificial - motif

<220>
<221> VARIANT
<222> (2)..(2)
<223> X = A OR S

<220>
<221> VARIANT
<222> (6)..(6)
<223> X = F OR Y

<220>
<221> VARIANT
<222> (7)..(7)
<223> X = L or V

<400> 58

Met Xaa Tyr Asp Arg Xaa Xaa Ala Ile Cys
1 5 10

<210> 59

<211> 7

<212> PRT

<213> Artificial - motif

<220>

<221> UNSURE

<222> (3)..(4)

<223> X = Unknown

<400> 59

Asp Arg Xaa Xaa Ala Ile Cys
1 5

<210> 60

<211> 7

<212> PRT

<213> Artificial - motif

<220>

<221> VARIANT

<222> (3)..(3)

<223> X = F or Y

<220>

<221> VARIANT

<222> (4)..(4)

<223> X = L or V

<400> 60

Asp Arg Xaa Xaa Ala Ile Cys
1 5

<210> 61

<211> 9

<212> PRT

<213> Artificial - motif

<220>

<221> UNSURE

<222> (2)..(7)

<223> X = Unknown

<220>

<221> VARIANT

<222> (1)..(1)

<223> X = K or R

<400> 61

Xaa Xaa Phe Ser Thr Cys Xaa Ser His
1 5

<210> 62

<211> 9

<212> PRT

<213> Artificial - motif

<220>

<221> VARIANT

<222> (1)..(1)

<223> X = K or R

<220>

<221> VARIANT

<222> (2)..(2)

<223> X = A or I or S or V

<220>

<221> VARIANT

<222> (7)..(7)

<223> X = A or G or S

<400> 62

Xaa Xaa Phe Ser Thr Cys Xaa Ser His
1 5

<210> 63

<211> 7

<212> PRT

<213> Artificial - motif

<220>

<221> UNSURE

<222> (5)..(5)

<223> X = Unknown

<400> 63

Phe Ser Thr Cys Xaa Ser His
1 5

<210> 64

<211> 7

<212> PRT

<213> Artificial - motif

<220>

<221> VARIANT

<222> (5)..(5)

<223> X = A or G or S

<400> 64

Phe Ser Trp Cys Xaa Ser His
1 5

<210> 65

<211> 12

<212> PRT

<213> Artificial - motif

<220>

<221> UNSURE

<222> (2)..(9)

<223> X = Unknown

<400> 65

Pro Xaa Xaa Asn Pro Xaa Ile Tyr Xaa Leu Arg Asn
1 5 10

<210> 66

<211> 12

<212> PRT

<213> Artificial - motif

<220>

<221> VARIANT

<222> (2)..(2)

<223> X = M or L or V

<220>

<221> VARIANT

<222> (3)..(3)

<223> X = F or L or V

<220>

<221> VARIANT

<222> (6)..(6)

<223> X = F or I

<220>

<221> VARIANT

<222> (9)..(9)

<223> X = C or S or T

<400> 66

Pro Xaa Xaa Asn Pro Xaa Ile Tyr Xaa Leu Arg Asn
1 5 10

<210> 67

<211> 8
<212> PRT
<213> Artificial - motif

<220>
<221> UNSURE
<222> (2)..(6)
<223> X = Unknown

<400> 67

Pro Xaa Xaa Asn Pro Xaa Ile Tyr
1 5

<210> 68
<211> 8
<212> PRT
<213> Artificial - motif

<220>
<221> VARIANT
<222> (2)..(2)
<223> X = M or L or V

<220>
<221> VARIANT
<222> (3)..(3)
<223> X = F or L or V

<220>
<221> VARIANT
<222> (6)..(6)
<223> X = F or I

<400> 68

Pro Xaa Xaa Asn Pro Xaa Ile Tyr
1 5

<210> 69
<211> 9
<212> PRT
<213> Artificial - motif

<220>
<221> UNSURE
<222> (3)..(6)
<223> X = Unknown

<400> 69

Asn Pro Xaa Ile Tyr Xaa Leu Arg Asn
1 5

<210> 70
 <211> 9
 <212> PRT
 <213> Artificial - motif

<220>
 <221> VARIANT
 <222> (3)..(3)
 <223> X = F or I

<220>
 <221> VARIANT
 <222> (6)..(6)
 <223> X = C or S or T

<400> 70

Asn Pro Xaa Ile Tyr Xaa Leu Arg Asn
 1 5

<210> 71
 <211> 333
 <212> PRT
 <213> Rattus sp. F3

<400> 71

Met Asp Ser Ser Asn Arg Thr Arg Val Ser Glu Phe Leu Leu Leu Gly
 1 5 10 15

Phe Val Glu Asn Lys Asp Leu Gln Pro Leu Ile Tyr Gly Leu Phe Leu
 20 25 30

Ser Met Tyr Leu Val Thr Val Ile Gly Asn Ile Ser Ile Ile Val Ala
 35 40 45

Ile Ile Ser Asp Pro Cys Leu His Thr Pro Met Tyr Phe Phe Leu Ser
 50 55 60

Asn Leu Ser Phe Val Asp Ile Cys Phe Ile Ser Thr Thr Val Pro Lys
 65 70 75 80

Met Leu Val Asn Ile Gln Thr Gln Asn Asn Val Ile Thr Tyr Ala Gly
 85 90 95

Cys Ile Thr Gln Ile Tyr Phe Phe Leu Leu Phe Val Glu Leu Asp Asn
 100 105 110

Phe Leu Leu Thr Ile Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys His
 115 120 125

Pro Met His Tyr Thr Val Ile Met Asn Tyr Lys Leu Cys Gly Phe Leu
 130 135 140

Val Leu Val Ser Trp Ile Val Ser Val Leu His Ala Leu Phe Gln Ser
 145 150 155 160

Leu Met Met Leu Ala Leu Pro Phe Cys Thr His Leu Glu Ile Pro His
 165 170 175
 Tyr Phe Cys Glu Pro Asn Gln Val Ile Gln Leu Thr Cys Ser Asp Ala
 180 185 190
 Phe Leu Asn Asp Leu Val Ile Tyr Phe Thr Leu Val Leu Leu Ala Thr
 195 200 205
 Val Pro Leu Ala Gly Ile Phe Tyr Ser Tyr Phe Lys Ile Val Ser Ser
 210 215 220
 Ile Cys Ala Ile Ser Ser Val His Gly Lys Tyr Lys Ala Phe Ser Thr
 225 230 235 240
 Cys Ala Ser His Leu Ser Val Val Ser Leu Phe Tyr Cys Thr Gly Leu
 245 250 255
 Gly Val Tyr Leu Ser Ser Ala Ala Asn Asn Ser Ser Gln Ala Ser Ala
 260 265 270
 Thr Ala Ser Val Met Tyr Thr Val Val Thr Pro Met Val Asn Pro Phe
 275 280 285
 Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Ser Val Leu Lys Lys Thr
 290 295 300
 Leu Cys Glu Glu Val Ile Arg Ser Pro Pro Ser Leu Leu His Phe Phe
 305 310 315 320
 Leu Val Leu Cys His Leu Pro Cys Phe Ile Phe Cys Tyr
 325 330

<210> 72
 <211> 313
 <212> PRT
 <213> Rattus sp. F5

<400> 72

Met Ser Ser Thr Asn Gln Ser Ser Val Thr Glu Phe Leu Leu Leu Gly
 1 5 10 15
 Leu Ser Arg Gln Pro Gln Gln Gln Gln Leu Leu Phe Leu Leu Phe Leu
 20 25 30
 Ile Met Tyr Leu Ala Thr Val Leu Gly Asn Leu Leu Ile Ile Leu Ala
 35 40 45
 Ile Gly Thr Asp Ser Arg Leu His Thr Pro Met Tyr Phe Phe Leu Ser
 50 55 60
 Asn Leu Ser Phe Val Asp Val Cys Phe Ser Ser Thr Thr Val Pro Lys
 65 70 75 80
 Val Leu Ala Asn His Ile Leu Gly Ser Gln Ala Ile Ser Phe Ser Gly
 85 90 95
 Cys Leu Thr Gln Leu Tyr Phe Leu Ala Val Phe Gly Asn Met Asp Asn
 51

100	105	110
Phe Leu Leu Ala Val Met Ser Tyr Asp Arg Phe Val Ala Ile Cys His		
115	120	125
Pro Leu His Tyr Thr Thr Lys Met Thr Arg Gln Leu Cys Val Leu Leu		
130	135	140
Val Val Gly Ser Trp Val Val Ala Asn Met Asn Cys Leu Leu His Ile		
145	150	155
Leu Leu Met Ala Arg Leu Ser Phe Cys Ala Asp Asn Met Ile Pro His		
165	170	175
Phe Phe Cys Asp Gly Thr Pro Leu Leu Lys Leu Ser Cys Ser Asp Thr		
180	185	190
His Leu Asn Glu Leu Met Ile Leu Thr Glu Gly Ala Val Val Met Val		
195	200	205
Thr Pro Phe Val Cys Ile Leu Ile Ser Tyr Ile His Ile Thr Cys Ala		
210	215	220
Val Leu Arg Val Ser Ser Pro Arg Gly Gly Trp Lys Ser Phe Ser Thr		
225	230	235
Cys Gly Ser His Leu Ala Val Val Cys Leu Phe Tyr Gly Thr Val Ile		
245	250	255
Ala Val Tyr Phe Asn Pro Ser Ser Ser His Leu Ala Gly Arg Asp Met		
260	265	270
Ala Ala Ala Val Met Tyr Ala Val Val Tnr Pro Met Leu Asn Pro Phe		
275	280	285
Ile Tyr Ser Leu Arg Asn Ser Asp Met Lys Ala Ala Leu Arg Lys Val		
290	295	300
Leu Ala Met Arg Phe Pro Ser Lys Gln		
305	310	

<210> 73
 <211> 311
 <212> PRT
 <213> Rattus sp. F6

<400> 73

Met Ala Trp Ser Thr Gly Gln Asn Leu Ser Thr Pro Gly Pro Phe Ile		
1	5	10
Leu Leu Gly Phe Pro Gly Pro Arg Ser Met Arg Ile Gly Leu Phe Leu		
20	25	30
Leu Phe Leu Val Met Tyr Leu Leu Thr Val Val Gly Asn Leu Ala Ile		
35	40	45
Ile Ser Leu Val Gly Ala His Arg Cys Leu Gln Thr Pro Met Tyr Phe		
50	55	60

Phe Leu Cys Asn Leu Ser Phe Leu Glu Ile Trp Phe Thr Thr Ala Cys
 65 70 75 80
 Val Pro Lys Thr Leu Ala Thr Phe Ala Pro Arg Gly Gly Val Ile Ser
 85 90 95
 Leu Ala Gly Cys Ala Thr Gln Met Tyr Phe Val Phe Ser Leu Gly Cys
 100 105 110
 Thr Glu Tyr Phe Leu Leu Ala Val Met Ala Tyr Asp Arg Tyr Leu Ala
 115 120 125
 Ile Cys Leu Pro Leu Arg Tyr Gly Gly Ile Met Thr Pro Gly Leu Ala
 130 135 140
 Met Arg Leu Ala Leu Gly Ser Trp Leu Cys Gly Phe Ser Ala Ile Thr
 145 150 155 160
 Val Pro Ala Thr Leu Ile Ala Arg Leu Ser Phe Cys Gly Ser Arg Val
 165 170 175
 Ile Asn His Phe Phe Cys Asp Ile Ser Pro Trp Ile Val Leu Ser Cys
 180 185 190
 Thr Asp Thr Gln Val Val Glu Leu Val Ser Phe Gly Ile Ala Phe Cys
 195 200 205
 Val Ile Leu Gly Ser Cys Gly Ile Thr Leu Val Ser Tyr Ala Tyr Ile
 210 215 220
 Ile Thr Thr Ile Ile Lys Ile Pro Ser Ala Arg Gly Arg His Arg Ala
 225 230 235 240
 Phe Ser Thr Cys Ser Ser His Leu Thr Val Val Leu Ile Trp Tyr Gly
 245 250 255
 Ser Thr Ile Phe Leu His Val Arg Thr Ser Val Glu Ser Ser Leu Asp
 260 265 270
 Leu Thr Lys Ala Ile Thr Val Leu Asn Thr Ile Val Thr Pro Val Leu
 275 280 285
 Asn Pro Phe Ile Tyr Thr Leu Arg Asn Lys Asp Val Lys Glu Ala Leu
 290 295 300
 Arg Arg Thr Val Lys Gly Lys
 305 310

<210> 74
 <211> 317
 <212> PRT
 <213> Rattus sp. F12

<400> 74

Met Glu Ser Gly Asn Ser Thr Arg Arg Phe Ser Ser Phe Phe Leu Leu
 1 5 10 15

Gly Phe Thr Glu Asn Pro Gln Leu His Phe Leu Ile Phe Ala Leu Phe
 20 25 30
 Leu Ser Met Tyr Leu Val Thr Val Leu Gly Asn Leu Leu Ile Ile Met
 35 40 45
 Ala Ile Ile Thr Gln Ser His Leu His Thr Pro Met Tyr Phe Phe Leu
 50 55 60
 Ala Asn Leu Ser Phe Val Asp Ile Cys Phe Thr Ser Thr Thr Ile Pro
 65 70 75 80
 Lys Met Leu Val Asn Ile Tyr Thr Gln Ser Lys Ser Ile Thr Tyr Glu
 85 90 95
 Asp Cys Ile Ser Gln Met Cys Val Phe Leu Val Phe Ala Glu Leu Gly
 100 105 110
 Asn Phe Leu Leu Ala Val Met Ala Tyr Asp Arg Tyr Val Ala Asn Cys
 115 120 125
 His Pro Leu Cys Tyr Thr Val Ile Val Asn His Arg Leu Cys Ile Leu
 130 135 140
 Leu Leu Leu Leu Ser Trp Val Ile Ser Ile Phe His Ala Phe Ile Gln
 145 150 155 160
 Ser Leu Ile Val Leu Gln Leu Thr Phe Cys Gly Asp Val Lys Ile Pro
 165 170 175
 His Phe Phe Cys Glu Leu Asn Gln Leu Ser Gln Leu Thr Cys Ser Asp
 180 185 190
 Asn Phe Pro Ser His Leu Ile Met Asn Leu Val Pro Val Met Leu Ala
 195 200 205
 Ala Ile Ser Phe Ser Gly Ile Leu Tyr Ser Tyr Phe Lys Ile Val Ser
 210 215 220
 Ser Ile His Ser Ile Ser Thr Val Gln Gly Lys Tyr Lys Ala Phe Ser
 225 230 235 240
 Thr Cys Ala Ser His Leu Ser Ile Val Ser Leu Phe Tyr Ser Thr Gly
 245 250 255
 Leu Gly Val Tyr Val Ser Ser Ala Val Val Gln Ser Ser His Ser Ala
 260 265 270
 Ala Ser Ala Ser Val Met Tyr Thr Val Val Thr Pro Met Leu Asn Pro
 275 280 285
 Phe Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Arg Ala Leu Glu Arg
 290 295 300
 Leu Leu Glu Gly Asn Cys Lys Val His His Trp Thr Gly
 305 310 315

<210> 75
 <211> 310

<212> PRT
 <213> Rattus sp. I3
 <400> 75

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Met Asn Asn Gln Thr Phe Ile Thr Gln Phe Leu Leu Leu Gly Leu Pro
1          5          10          15

Ile Pro Glu Glu His Gln His Leu Phe Tyr Ala Leu Phe Leu Val Met
20          25          30

Tyr Leu Thr Thr Ile Leu Gly Asn Leu Leu Ile Ile Val Leu Val Gln
35          40          45

Leu Asp Ser Gln Leu His Thr Pro Met Tyr Leu Phe Leu Ser Asn Leu
50          55          60

Ser Phe Ser Asp Leu Cys Phe Ser Ser Val Thr Met Pro Lys Leu Leu
65          70          75

Gln Asn Met Arg Ser Gln Asp Thr Ser Ile Pro Tyr Gly Gly Cys Leu
85          90          95

Ala Gln Thr Tyr Phe Phe Met Val Phe Gly Asp Met Glu Ser Phe Leu
100         105         110

Leu Val Ala Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Phe Pro Leu
115         120         125

His Tyr Thr Ser Ile Met Ser Pro Lys Leu Cys Thr Cys Leu Val Leu
130         135         140

Leu Leu Trp Met Leu Thr Thr Ser His Ala Met Met His Thr Leu Leu
145         150         155         160

Ala Ala Arg Leu Ser Phe Cys Glu Asn Asn Val Val Leu Asn Phe Phe
165         170         175

Cys Asp Leu Phe Val Leu Leu Lys Leu Ala Cys Ser Asp Thr Tyr Ile
180         185         190

Asn Glu Leu Met Ile Phe Ile Met Ser Thr Leu Leu Ile Ile Ile Pro
195         200         205

Phe Phe Leu Ile Val Met Ser Tyr Ala Arg Ile Ile Ser Ser Ile Leu
210         215         220

Lys Val Pro Ser Thr Gln Gly Ile Cys Lys Val Phe Ser Thr Cys Gly
225         230         235         240

Ser His Leu Ser Val Val Ser Leu Phe Tyr Gly Thr Ile Ile Gly Leu
245         250         255

Tyr Leu Cys Pro Ala Gly Asn Asn Ser Thr Val Lys Glu Met Val Met
260         265         270

Ala Met Met Tyr Thr Val Val Thr Pro Met Leu Asn Pro Phe Ile Tyr
275         280         285

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Ser Leu Arg Asn Arg Asp Met Lys Arg Ala Leu Ile Arg Val Ile Cys
 290 295 300
 Ser Met Lys Ile Thr Leu
 305 310
 <210> 76
 <211> 327
 <212> PRT
 <213> Rattus sp. I7
 <400> 76
 Met Glu Arg Arg Asn His Ser Gly Arg Val Ser Glu Phe Val Leu Leu
 1 5 10 15
 Gly Phe Pro Ala Pro Ala Pro Leu Arg Val Leu Leu Phe Phe Leu Ser
 20 25 30
 Leu Leu Asp Tyr Val Leu Val Leu Thr Glu Asn Met Leu Ile Ile Ile
 35 40 45
 Ala Ile Arg Asn His Pro Thr Leu His Lys Pro Met Tyr Phe Phe Leu
 50 55 60
 Ala Asn Met Ser Phe Leu Glu Ile Trp Tyr Val Thr Val Thr Ile Pro
 65 70 75 80
 Lys Met Leu Ala Gly Phe Ile Gly Ser Lys Glu Asn His Gly Gln Leu
 85 90 95
 Ile Ser Phe Glu Ala Cys Met Thr Gln Leu Tyr Phe Phe Leu Gly Leu
 100 105 110
 Gly Cys Thr Glu Cys Val Leu Leu Ala Val Met Ala Tyr Asp Arg Tyr
 115 120 125
 Val Ala Ile Cys His Pro Leu His Tyr Pro Val Ile Val Ser Ser Arg
 130 135 140
 Leu Cys Val Gln Met Ala Ala Gly Ser Trp Ala Gly Gly Phe Gly Ile
 145 150 155 160
 Ser Met Val Lys Val Phe Leu Ile Ser Arg Leu Ser Tyr Cys Gly Pro
 165 170 175
 Asn Thr Ile Asn His Phe Phe Cys Asp Val Ser Pro Leu Leu Asn Leu
 180 185 190
 Ser Cys Thr Asp Met Ser Thr Ala Glu Leu Thr Asp Phe Val Leu Ala
 195 200 205
 Ile Phe Ile Leu Leu Gly Pro Leu Ser Val Thr Gly Ala Ser Tyr Met
 210 215 220
 Ala Ile Thr Gly Ala Val Met Arg Ile Pro Ser Ala Ala Gly Arg His
 225 230 235 240
 Lys Ala Phe Ser Thr Cys Ala Ser His Leu Thr Val Val Ile Ile Phe

Asn Glu Leu Met Ile His Ile Met Gly Val Ile Ile Ile Val Ile Pro
 195 200 205
 Phe Val Leu Ile Val Ile Ser Tyr Ala Lys Ile Ile Ser Ser Ile Leu
 210 215 220
 Lys Val Pro Ser Thr Gln Ser Ile His Lys Val Phe Ser Thr Cys Gly
 225 230 235 240
 Ser His Leu Ser Val Val Ser Leu Phe Tyr Gly Thr Ile Ile Gly Leu
 245 250 255
 Tyr Leu Cys Pro Ser Gly Asp Asn Phe Ser Leu Lys Gly Ser Ala Met
 260 265 270
 Ala Met Met Tyr Thr Val Val Thr Pro Met Leu Asn Pro Phe Ile Tyr
 275 280 285
 Ser Leu Arg Asn Arg Asp Met Lys Gln Ala Leu Ile Arg Val Thr Cys
 290 295 300
 Ser Lys Lys Ile Ser Leu Pro Trp
 305 310
 <210> 78
 <211> 314
 <212> PRT
 <213> Rattus sp. I9
 <400> 78
 Met Thr Arg Arg Asn Gln Thr Ala Ile Ser Gln Phe Phe Leu Leu Gly
 1 5 10 15
 Leu Pro Phe Pro Pro Glu Tyr Gln His Leu Phe Tyr Ala Leu Phe Leu
 20 25 30
 Ala Met Tyr Leu Thr Thr Leu Leu Gly Asn Leu Ile Ile Ile Leu
 35 40 45
 Ile Leu Leu Asp Ser His Leu His Thr Pro Met Tyr Leu Phe Leu Ser
 50 55 60
 Asn Leu Ser Phe Ala Asp Leu Cys Phe Ser Ser Val Thr Met Pro Lys
 65 70 75 80
 Leu Leu Gln Asn Met Gln Ser Gln Val Pro Ser Ile Pro Tyr Ala Gly
 85 90 95
 Cys Leu Ala Gln Ile Tyr Phe Phe Leu Phe Phe Gly Asp Leu Gly Asn
 100 105 110
 Phe Leu Leu Val Ala Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Phe
 115 120 125
 Pro Leu His Tyr Met Ser Ile Met Ser Pro Lys Leu Cys Val Ser Leu
 130 135 140

Val Val Leu Ser Trp Val Leu Thr Thr Phe His Ala Met Leu His Thr
 145 150 155 160
 Leu Leu Met Ala Arg Leu Ser Phe Cys Glu Asp Ser Val Ile Pro His
 165 170 175
 Tyr Phe Cys Asp Met Ser Thr Leu Leu Lys Val Ala Cys Ser Asp Thr
 180 185 190
 His Asp Asn Glu Leu Ala Ile Phe Ile Leu Gly Gly Pro Ile Val Val
 195 200 205
 Leu Pro Phe Leu Leu Ile Ile Val Ser Tyr Ala Arg Ile Val Ser Ser
 210 215 220
 Ile Phe Lys Val Pro Ser Ser Gln Ser Ile His Lys Ala Phe Ser Thr
 225 230 235 240
 Cys Gly Ser His Leu Ser Val Val Ser Leu Phe Tyr Gly Thr Val Ile
 245 250 255
 Gly Leu Tyr Leu Cys Pro Ser Ala Asn Asn Ser Thr Val Lys Glu Thr
 260 265 270
 Val Met Ser Leu Met Tyr Thr Met Val Thr Pro Met Leu Asn Pro Phe
 275 280 285
 Ile Tyr Ser Leu Arg Asn Arg Asp Ile Lys Asp Ala Leu Glu Lys Ile
 290 295 300
 Met Cys Lys Lys Gln Ile Pro Ser Phe Leu
 305 310
 <210> 79
 <211> 312
 <212> PRT
 <213> Rattus sp. I14
 <400> 79
 Met Thr Gly Asn Asn Gln Thr Leu Ile Leu Glu Phe Leu Leu Leu Gly
 1 5 10 15
 Leu Pro Ile Pro Ser Glu Tyr His Leu Leu Phe Tyr Ala Leu Phe Leu
 20 25 30
 Ala Met Tyr Leu Thr Ile Ile Leu Gly Asn Leu Leu Ile Ile Val Leu
 35 40 45
 Val Arg Leu Asp Ser His Leu His Met Pro Met Tyr Leu Phe Leu Ser
 50 55 60
 Asn Leu Ser Phe Ser Asp Leu Cys Phe Ser Ser Val Thr Met Pro Lys
 65 70 75 80
 Leu Leu Gln Asn Met Gln Ser Gln Val Pro Ser Ile Ser Tyr Thr Gly
 85 90 95
 Cys Leu Thr Gln Leu Tyr Phe Phe Met Val Phe Gly Asp Met Glu Ser
 59

100 105 110
 Phe Leu Leu Val Val Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Phe
 115 120 125
 Pro Leu Arg Tyr Thr Thr Ile Met Ser Thr Lys Phe Cys Ala Ser Leu
 130 135 140
 Val Leu Leu Leu Trp Met Leu Thr Met Thr His Ala Leu Leu His Thr
 145 150 155 160
 Leu Leu Ile Ala Arg Leu Ser Phe Cys Glu Lys Asn Val Ile Leu His
 165 170 175
 Phe Phe Cys Asp Ile Ser Ala Leu Leu Lys Leu Ser Cys Ser Asp Ile
 180 185 190
 Tyr Val Asn Glu Leu Met Ile Tyr Ile Leu Gly Gly Leu Ile Ile Ile
 195 200 205
 Ile Pro Phe Leu Leu Ile Val Met Ser Tyr Val Arg Ile Phe Phe Ser
 210 215 220
 Ile Leu Lys Phe Pro Ser Ile Gln Asp Ile Tyr Lys Val Phe Ser Thr
 225 230 235 240
 Cys Gly Ser His Leu Ser Val Val Thr Leu Phe Tyr Gly Thr Ile Phe
 245 250 255
 Gly Ile Tyr Leu Cys Pro Ser Gly Asn Asn Ser Thr Val Lys Glu Ile
 260 265 270
 Ala Met Ala Met Met Tyr Thr Val Val Thr Pro Met Leu Asn Pro Phe
 275 280 285
 Ile Tyr Ser Leu Arg Asn Arg Asp Met Lys Arg Ala Leu Ile Arg Val
 290 295 300
 Ile Cys Thr Lys Lys Ile Ser Leu
 305 310
 <210> 80
 <211> 314
 <212> PRT
 <213> Rattus sp. I15
 <400> 80

Met Thr Glu Glu Asn Gln Thr Val Ile Ser Gln Phe Leu Leu Leu Phe
 1 5 10 15
 Leu Pro Ile Pro Ser Glu His Gln His Val Phe Tyr Ala Leu Phe Leu
 20 25 30
 Ser Met Tyr Leu Thr Thr Val Leu Gly Asn Leu Ile Ile Ile Ile Leu
 35 40 45
 Ile His Leu Asp Ser His Leu His Thr Pro Met Tyr Leu Phe Leu Ser
 50 55 60

Asn Leu Ser Phe Ser Asp Leu Cys Phe Ser Ser Val Thr Met Pro Lys
 65 70 75 80
 Leu Leu Gln Asn Met Gln Ser Gln Val Pro Ser Ile Pro Phe Ala Gly
 85 90 95
 Cys Leu Thr Gln Leu Tyr Phe Tyr Leu Tyr Phe Ala Asp Leu Glu Ser
 100 105 110
 Phe Leu Leu Val Ala Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Phe
 115 120 125
 Pro Leu His Tyr Met Ser Ile Met Ser Pro Lys Leu Cys Val Ser Leu
 130 135 140
 Val Val Leu Ser Trp Val Leu Thr Thr Phe His Ala Met Leu His Thr
 145 150 155 160
 Leu Leu Met Ala Arg Leu Ser Phe Cys Ala Asp Asn Met Ile Pro His
 165 170 175
 Phe Phe Cys Asp Ile Ser Pro Leu Leu Lys Leu Ser Cys Ser Asp Thr
 180 185 190
 His Val Asn Glu Leu Val Ile Phe Val Met Gly Gly Leu Val Ile Val
 195 200 205
 Ile Pro Phe Val Leu Ile Ile Val Ser Tyr Ala Arg Val Val Ala Ser
 210 215 220
 Ile Leu Lys Val Pro Ser Val Arg Gly Ile His Lys Ile Phe Ser Thr
 225 230 235 240
 Cys Gly Ser His Leu Ser Val Val Ser Leu Phe Tyr Gly Thr Ile Ile
 245 250 255
 Gly Leu Tyr Leu Cys Pro Ser Ala Asn Asn Ser Thr Val Lys Glu Thr
 260 265 270
 Val Met Ala Met Met Tyr Thr Val Val Thr Pro Met Leu Asn Pro Phe
 275 280 285
 Ile Tyr Ser Leu Arg Asn Arg Asp Met Lys Glu Ala Leu Ile Arg Val
 290 295 300
 Leu Cys Lys Lys Lys Ile Thr Phe Cys Leu
 305 310